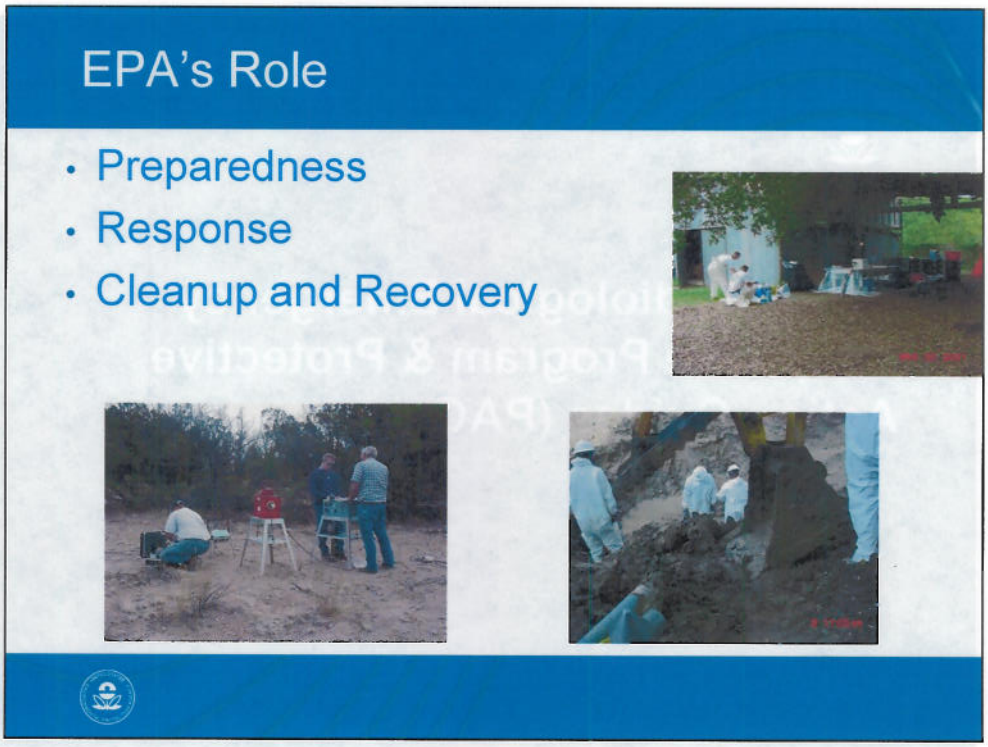
EPA's Radiological Emergency Response Program & Protective Action Guides (PAGs)

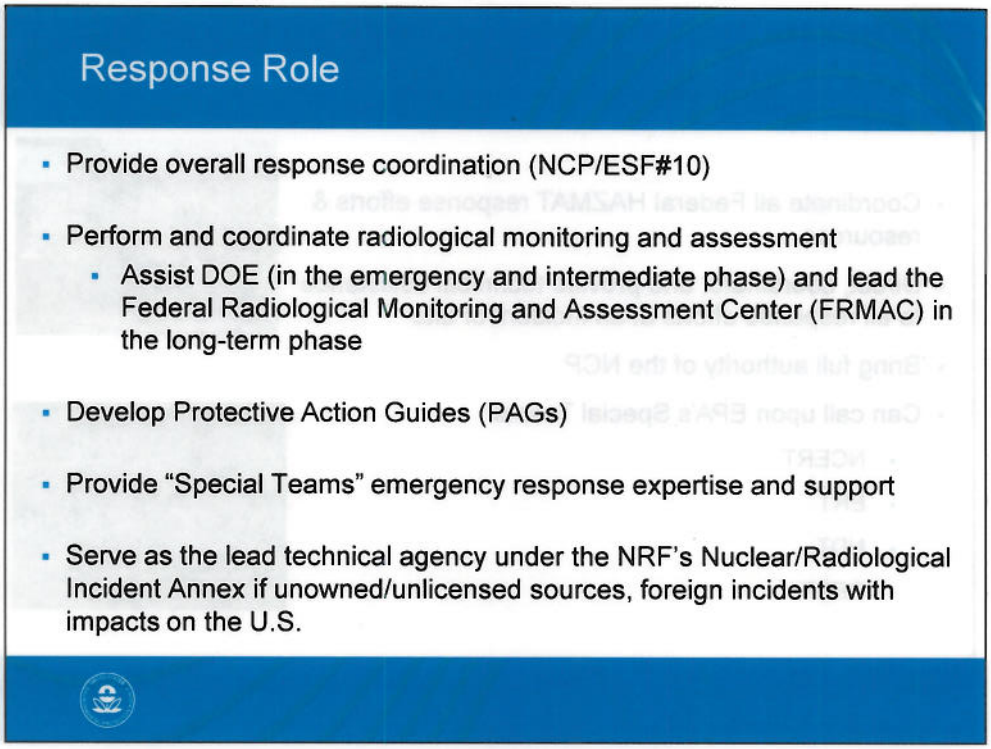
Iraqi Visit, September 2010
Presented by:
Sara DeCair, EPA Office of Air & Radiation



National Response Framework (NRF) All Hazards, Nationally significant incidents, Nuclear/Radiological Incident Annex and ESF #10

National Oil & Hazardous Substance Pollution Contingency Plan (NCP) All Oil, Hazardous Substances, & Pollutants or Contaminants, Includes any imminent and substantial threat to the public health or welfare of the United States or the environment of the United States including radiological materials and we have our own response/cleanup authorities here without regard to NRF…

Stafford Act – authority (and funding mechanism) for most federal response activities in disasters



Provide overall response coordination (NCP/ESF#10) – emergency response management/support to federal, state, tribal, and local governments

Perform and coordinate radiological monitoring and assessment

> Assist DOE (in the emergency and intermediate phase) and lead the Federal Radiological Monitoring and Assessment Center (FRMAC) in the long-term phase

Develop Protective Action Guides (PAGs)

> AEA and more specifically the Radiological Emergency Planning and Preparedness Regulation assign EPA the responsibility to develop incident-specific PAGs for states

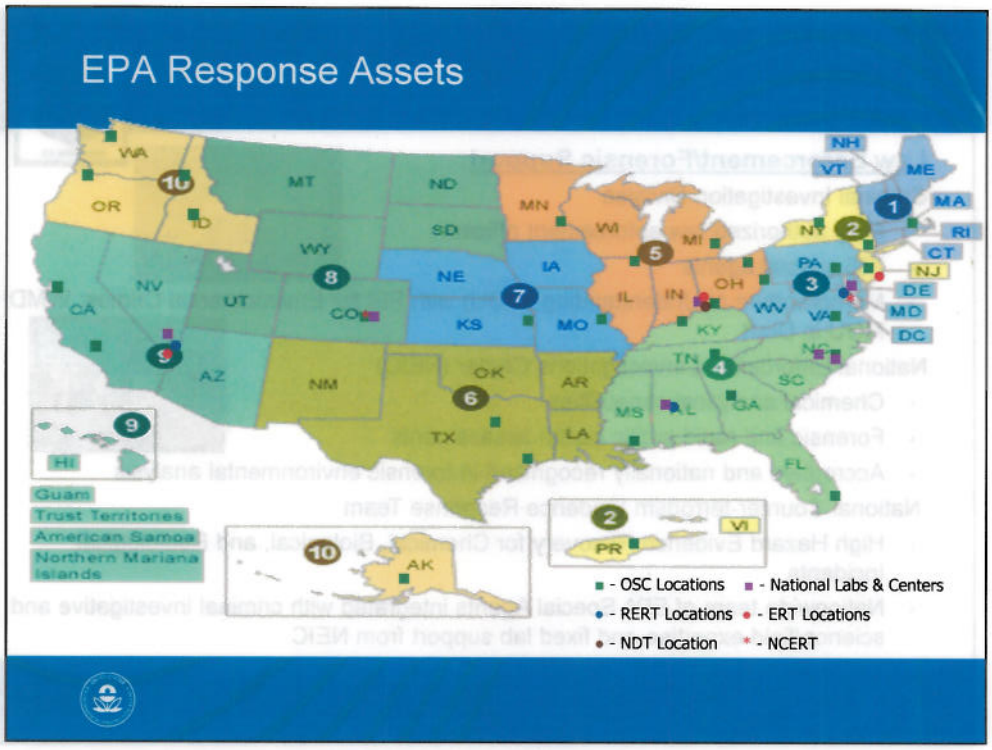
Provide "Special Teams" emergency response radiological expertise and support under the NCP as well as NIRT members if requested by FEMA

Serve as lead technical agency under the NRF's Nuclear/Radiological Incident Annex in some circumstances

> Unowned/unlicensed sources, foreign incidents with impacts on the U.S.

EPA On-Scene Coordinators (OSCs)

- Coordinate all Federal HAZMAT response efforts & resources
- Direct, coordinate, and provide technical assistance to all response efforts at an incident or site
- Bring full authority of the NCP
- Can call upon EPA's Special Teams:
  - NCERT
  - ERT
  - NDT
  - RERT



These assets are described in greater detail on the following slides. We have assets located throughout the country, which we've increased since 9/11 by outposting more OSCs.

EPA's Role in Threat Response and Incident Assessment

Law Enforcement/Forensic Support

Criminal Investigation Division

- Fully authorized law enforcement officers
- 235 special agents
- Memorandum of Understanding (MOU) with FBI for Environmental Crimes; WMD MOU in Draft

National Enforcement Investigations Center (NEIC)

- Chemical analytical capabilities
- Forensic and rapid public health assessments
- Accredited and nationally recognized in forensic environmental analysis

National Counter-terrorism Evidence Response Team

- High Hazard Evidence Recovery for Chemical, Biological, and Radiological Incidents
- Nationwide team of EPA Special Agents integrated with criminal investigative and science/field expertise and fixed lab support from NEIC

Environmental Response Team (ERT)

- Provides experienced technical and logistical assistance in responding to environmental emergencies
  - Emergency response, site characterization and assessment, verification, cleanup, and disposal of radiologically contaminated wastes or release events
- Response capabilities include:
  - Air Monitoring
  - Alpha, Beta, Gamma, Neutron Detection and Quantification
  - Clean-Up Verification or Final Status Surveys (MARSSIM)
  - Contamination Containment
  - Disposal Option Determination
  - Environmental Monitoring and Sampling Design and Implementation
  - Isotopic Characterization
  - Decontamination

National Decontamination Team (NDT)

- Technical resource for decontamination science to provide support for actions that contribute to the protection of human health, the environment, and national security
- Provides unique, immediate response capabilities to safely and effectively support decon activities related to chemical, biological, and radiological events
- Provides expertise in radiological, chemical, and biological decontamination (for buildings, transportation, agriculture, food, open space, etc.)
- ASPECT provides 24/7 emergency response chemical/radiological plume mapping capability

Airborne Spectral Photometric Collection Technology

Radiological Emergency Response Team (RERT)

- Provide guidance & on-scene assistance at Superfund and ER sites to OSCs and in the FRMAC
- Field-Deployable RERT:
  - Focus is on identifying and assessing potential impacts of low-level contamination
  - Field monitoring instruments and sample collection equipment
  - Mobile laboratories and capabilities
- Two national laboratories capable of providing comprehensive environmental analytical services

ERGS – Enhanced Radiological Ground Scanning (ERGS) System

- Currently under development

- Can provide detailed information about gamma radiation on a site without sampling or using earth-moving equipment.

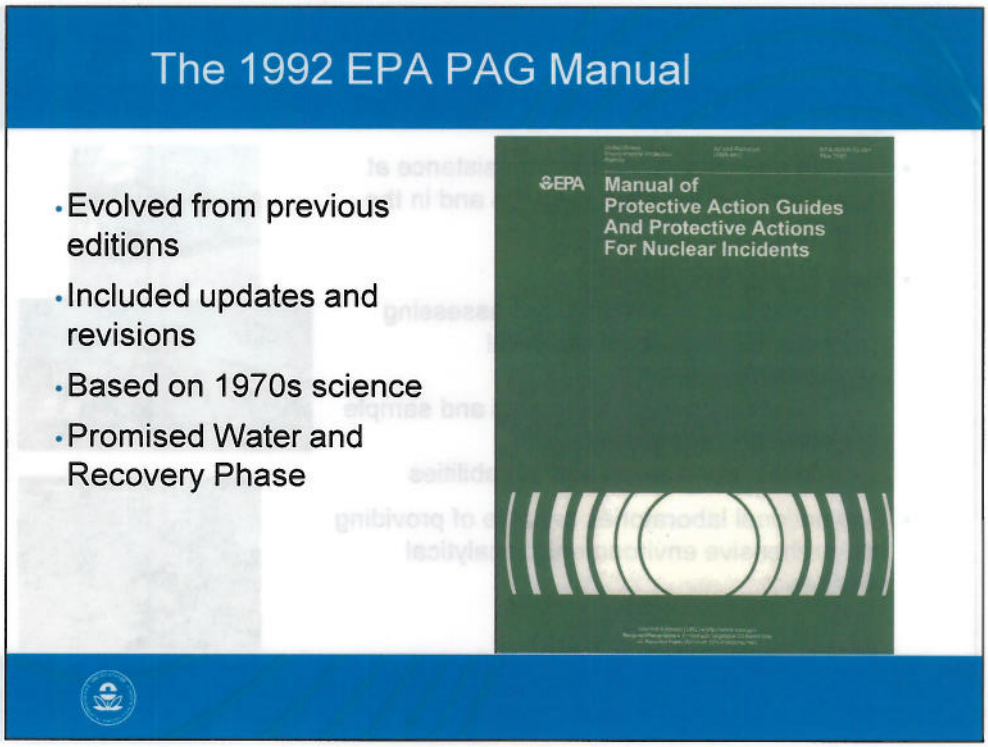
- Could be reconfigured to perform vehicle monitoring in an emergency more rapidly than survey instruments.

Scanner Van

Finds anomalous gamma radiation

Covers large area quickly to ID hotspots

4 X 4 X 16 NaI, GPS, computer tracking



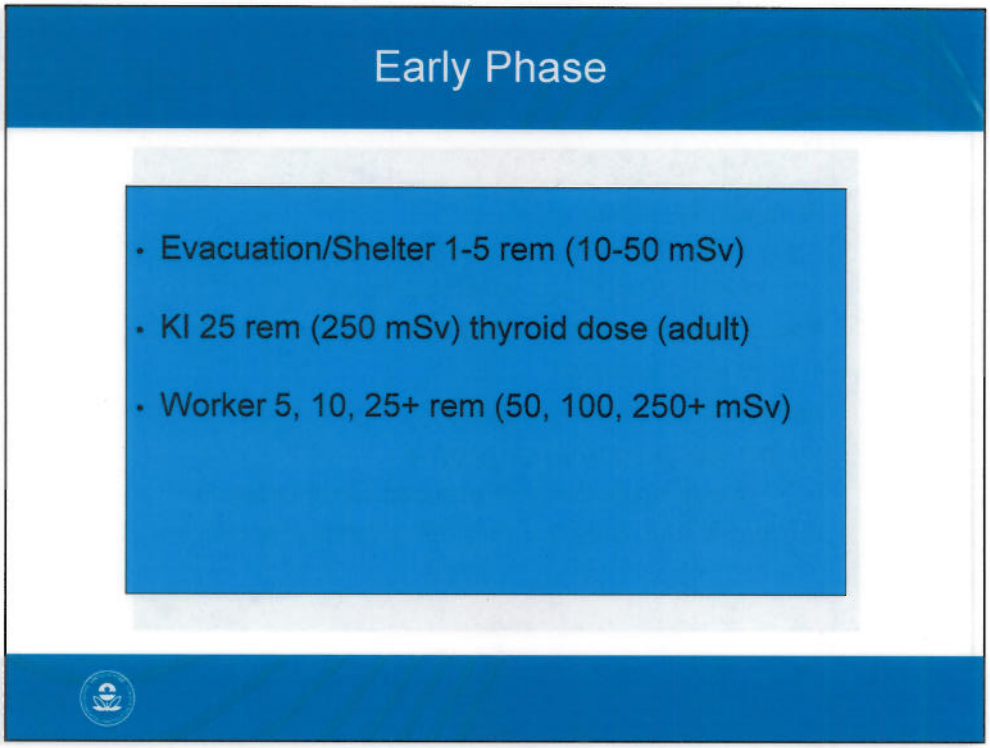
Providing guidance to other federal agencies on radiation exposure limits was one of the responsibilities delegated to the EPA upon its formation in 1970. Under regulations governing radiological emergency planning and preparedness issued by the Federal Emergency Management Agency (FEMA) in 1982, EPA was given the responsibilities to (1) establish Protective Action Guides (PAGs) (2) prepare guidance on implementing PAGs and (3) develop and promulgate guidance to State and local governments on the preparation of emergency response plans2. In carrying out these responsibilities, EPA previously published PAGs, the most recent being the 1992 Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. The guidance was very nuclear power plant – centric. Other incidents were considered lesser, and if the power plant was covered, so would all other incidents/events/accidents

What is a Protective Action Guide?

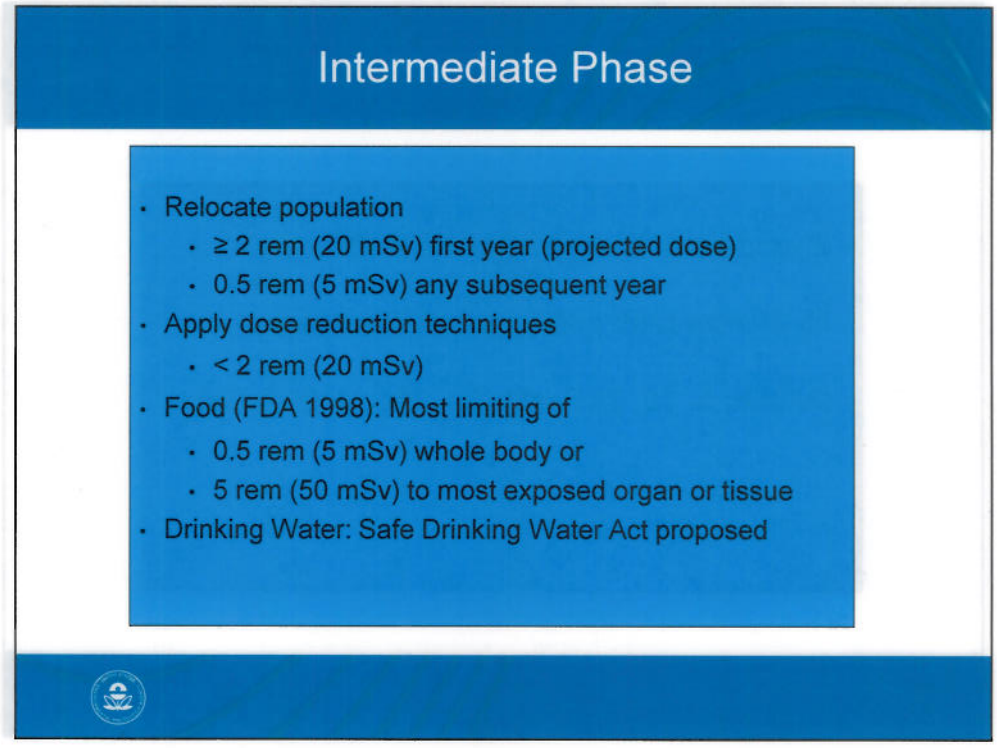
- A **value** against which to compare the **projected dose** to reference man, or other defined individual, from a release of radioactive material at which a specific protective action to reduce or avoid that dose is warranted. **Projected dose** is dose that can be averted by protective action.
- Guidance for public officials.
- Protective Action Guides are called 'PAGs'

Incident Response Phases

- Early Phase: The first hours to days until the release has stopped, when protective actions decisions must be made with little to no information
- Intermediate Phase: The weeks to months when more information is available, protective actions are more restrictive, and cleanup planning begins
- Late Phase: No longer an emergency response; activities shift to long term recovery and cleanup

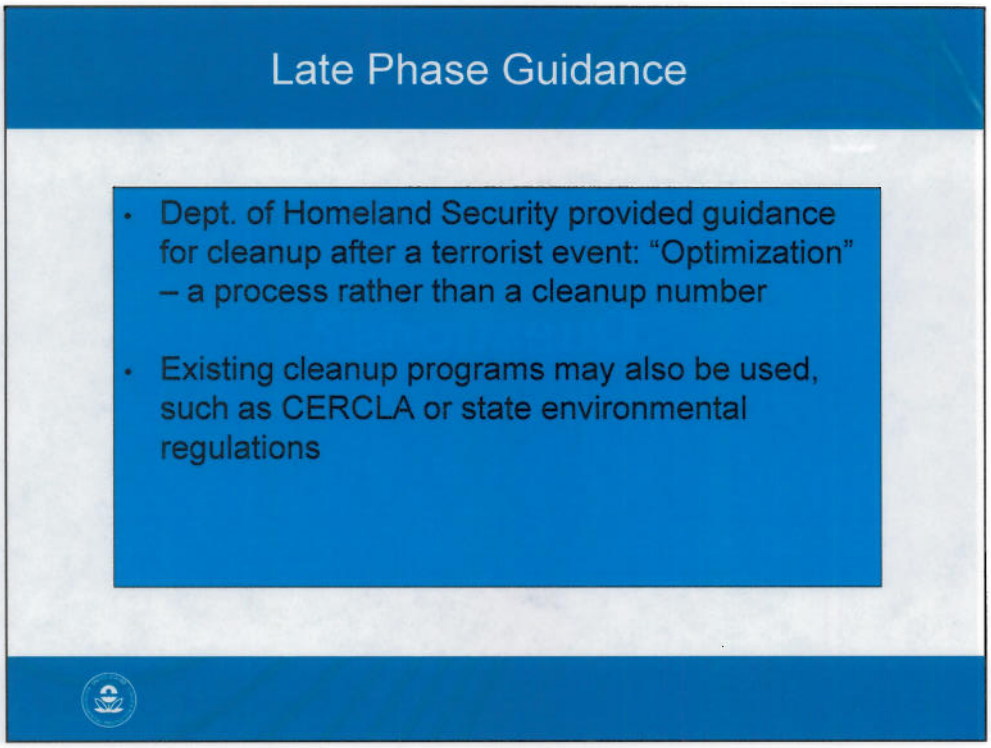


The next few slides summarize the 1992 PAG Manual for each phase of a nuclear incident.



Activities in the Intermediate Phase are intended to reduce or avoid dose to the public, control worker exposures, control the spread of radioactive contamination, and prepare for long-term cleanup operations. This phase covers doses received in the first year, out to 50 years.

The PAG for food is based on guidance from FDA published in 1998. This guidance provides a threshold dose limit to assist decision-makers in determining whether protective actions need to be taken for food. If one of the dose limit thresholds is met, either the 0.5 rem projected dose limit for the whole body or the 5 rem limit to the most exposed organ or tissue, then local decision-makers should consider action to protect an area's local food sources. Such action might be covering exposed food products, moving animals to shelter, and providing protected feed and water to animals. It may also be necessary to place temporary embargoes on food and agricultural products to prevent public consumption of potentially contaminated food.

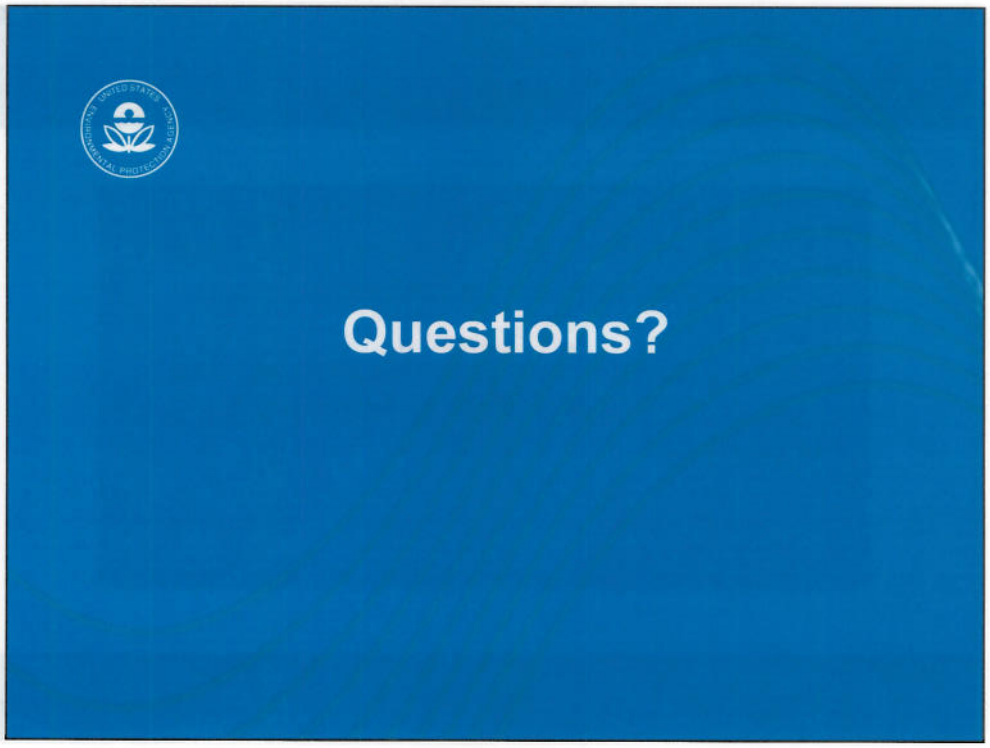


The Department of Homeland Security's RDD and IND Consequence Management Workgroup provided EPA with guidance for the Late Phase. This guidance is based on the radiation protection principle of optimization.

Optimization is based on the general principle that exposure to radiation should be controlled so as to achieve the lowest level reasonably attainable. The optimization principle is applied on a case-by-case basis, and numerical radiation criteria for cleanup depend on the specific circumstances of the incident. The PAG Manual provides several "benchmark" criteria that may be considered by a site recovery work group, including those used by the Superfund remedial site cleanup program and the NRC/Agreement States decommissioning programs.

Ultimately, a site recovery work group will need to balance any number of factors that influence cleanup decisions. Such factors include the size of the area impacted, the type of contamination involved, the type of wastes generated, the economic effects on the area, and the public's willingness to accept any given solution.

As a reminder, these 1992-2008 comparison slides, the ones that briefly highlight how the elements found in the 2008 Manual are the same—or different—than those in the 1992 Manual, are in your handouts. I invite you to turn back to the relevant handout page when we discuss the various PAGs later on.


Questions?